

IN THE UNITED STATES DISTRICT COURT
FOR THE NORTHERN DISTRICT OF TEXAS
SAN ANGELO DIVISION

JUSTIN MOORE and JUDITH MOORE,

Plaintiffs,

VS.

DB INDUSTRIES, LLC d/b/a 3M FALL
PROTECTION, CAPITAL SAFETY USA,
CAPITAL SAFETY GROUP, and DBI/SALA;

SAFeworks, LLC, d/b/a POWER CLIMBER
WIND;

and

POWER CLIMBER BVBA d/b/a POWER
CLIMBER WIND,

Defendants.

CIVIL ACTION NO. 6:19-CV-00038-H

JURY DEMANDED

PLAINTIFFS' DISCLOSURE OF EXPERT WITNESSES (SECOND)

TO THE HONORABLE UNITED STATES DISTRICT COURT JUDGE:

COMES NOW Plaintiffs Justin Moore and Judith Moore in compliance with the Federal Rules of Civil Procedure cited below, and subject to the *Stipulation to Continue Expert Designations and Reports* [Doc. 52], hereby disclose the identity of witnesses who the Plaintiffs may use at trial to present rebuttal evidence under Federal Rule of Evidence 702, 703 or 705.

- *Federal Rule of Civil Procedure 26(a)(1)(A)(i)*: the name and, if known, the address and telephone number of each individual likely to have discoverable information—along with the subjects of that information—that the disclosing party may use to support its claims or defenses, unless the use would be solely for impeachment; *Federal Rule of Civil Procedure 26(a)(2)(A)*: In addition to the disclosures required by Rule 26(a)(1), a party must disclose to the other parties the identity of any witness it may use at trial to present evidence under Federal Rule of Evidence 702, 703, or 705.
- *Federal Rule of Civil Procedure 26(a)(2)(B)*: Witnesses Who Must Provide a Written Report. Unless otherwise stipulated or ordered by the court, this disclosure must be accompanied by a written report—prepared and signed by the witness—if the witness is one retained or specially employed to provide expert testimony in the case or one whose duties as the party’s employee regularly involve giving expert testimony. The report must

contain: (i) a complete statement of all opinions the witness will express and the basis and reasons for them; (ii) the facts or data considered by the witness in forming them; (iii) any exhibits that will be used to summarize or support them; (iv) the witness's qualifications, including a list of all publications authored in the previous 10 years; (v) a list of all other cases in which, during the previous 4 years, the witness testified as an expert at trial or by deposition; and (vi) a statement of the compensation to be paid for the study and testimony in the case.

- *Federal Rule of Civil Procedure 26(a)(2)(C):* Witnesses Who Do Not Provide a Written Report. Unless otherwise stipulated or ordered by the court, if the witness is not required to provide a written report, this disclosure must state: (i) the subject matter on which the witness is expected to present evidence under Federal Rule of Evidence 702, 703, or 705; and (ii) a summary of the facts and opinions to which the witness is expected to testify.

Bastiaan Cornelissen, Ph.D., P.E
Spectrum Forensics
3773 S. Jason Street #2
Englewood, CO 80110
(303) 963-9650

Dr. Cornelissen is an expert forensic engineer who has been asked to review the events surrounding Mr. Moore's fall and determine the cause of Mr. Moore's fall and the cause of the device failures associated with the fall. Dr. Cornelissen is a licensed professional engineer specialized in forensic analysis.

In addition to the report previously offered, Dr. Cornelissen has prepared a rebuttal report with Dr. Russell addressing issues brought forward in Defendant's disclosures. Plaintiffs hereby supplement the prior report of Dr. Cornelissen to disclose his rebuttal opinions.

It is believed that Dr. Cornelissen will testify based upon his training and experience, as well as a review of the relevant information outlined in his report and a review of the material generated during the discovery phase of this litigation (including those items described in his report). Further, his opinions are based upon his review of information gathered during multiple joint inspections, the mechanical analysis of multiple exemplar devices and consultation with Dr. Russell.

The general substance of Dr. Cornelissen's mental impressions and opinions are set forth in his report (attached). Plaintiff incorporates by reference the deposition of Dr. Cornelissen if and when taken, and any additional/supplemental reports he may provide.

Plaintiff incorporates by reference Dr. Cornelissen's report for additional information about his topics and substance of his anticipated testimony and the materials upon which he relied is attached.

Mark Russell, Pd.D., P.E.
Spectrum Forensics
3773 S. Jason Street #2
Englewood, CO 80110
(303) 963-9650

Dr. Russell is an expert engineer who has been asked to review the events surrounding Mr. Moore's fall and determine the cause of the device failures associated with the fall, and the fall mechanical engineering and manufacturing associated with the Lad Saf X3 and the feasible alternative designs. Dr. Russell is a licensed professional engineer specialized in forensic analysis and mechanical engineering.

It is believed that Dr. Russell will testify based upon his training and experience, as well as a review of the relevant information outlined in his report and a review of the material generated during the discovery phase of this litigation (including those items described in his report). Further, his opinions are based upon his review of information gathered during multiple joint inspections, the mechanical analysis of multiple exemplar devices and consultation with Dr. Cornelissen.

In addition to the report previously offered, Dr. Russell has prepared a rebuttal report with Dr. Russell addressing issues brought forward in Defendant's disclosures. Plaintiffs hereby supplement the prior report of Dr. Russell to disclose his rebuttal opinions.

The general substance of Dr. Russell's mental impressions and opinions are set forth in his report (attached). Plaintiff incorporates by reference the deposition of Dr. Russell if and when taken, and any additional/supplemental reports he may provide.

Plaintiff incorporates by reference Dr. Russell's report for additional information about his topics and substance of his anticipated testimony and the materials upon which he relied is attached.

DATED: December 15, 2020

Respectfully submitted,

THE ROBERT PAHLKE LAW GROUP

/s/ Kyle J. Long

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ATTORNEYS FOR PLAINTIFFS

CERTIFICATE OF SERVICE

I hereby certify this 15th day of December 2020 that a copy of the foregoing document was filed electronically in compliance with Local Rule CV-5. Therefore, this document was served on all counsel via electronic service. Local Rule CV-5.

/s/ Kyle Long
Kyle J. Long



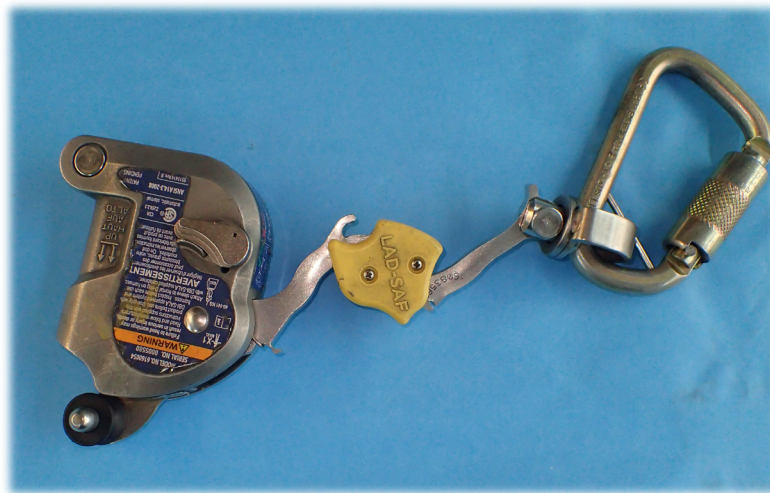
Justin Moore

Fall Incident Investigation

Prepared For

KYLE J. LONG

The Robert Pahlke Law Group





December 15, 2020

REBUTTAL REPORT

The Robert Pahlke Law Group
Attn: Kyle J. Long
2425 Circle Drive, Suite 200
Scottsbluff, NE 69361

SUBJECT: MOORE FALL INCIDENT INVESTIGATION
SF20-108

Date of Loss: June 8, 2017
Case No.: 6:19-cv-00038-C
Clients: Justin and Judith Moore

Dear Mr. Long:

Per your request, Spectrum Forensics, LLC (Spectrum) has continued the investigation of equipment involved in a June 8, 2017 fall incident at wind turbine tower in Mills County, TX. Justin Moore was injured when he fell while descending a ladder in the interior of the tower.

Documents Reviewed

Documents reviewed in the course of this continued investigation include:

- Report, Rimkus Consulting Group, Inc., November 19, 2020
- Report, Elevated Insight & Engineering Ltd., November 13, 2020
- Report, Structural Integrity Associates, Inc., November 13, 2020
- Causation opinion, Orthopedic Specialists of Austin, March 25, 2020
- Causation opinion, TruOrtho, March 25, 2020
- Preliminary rehabilitation plan, Isom Rehabilitation Consulting, August 7, 2020
- Letter, 3M Fall Protection Business, June 1, 2020

Engineering Analysis

The reports prepared by Elevated insight & Engineering Ltd. ("EI&E") and Structural Integrity Associates, Inc. ("SI") discuss testing performed exclusively for 3M's retained consultants at 3M's Red Wing, MN facility. This testing was conducted in the aftermath of the joint laboratory examinations and testing performed at Engineering Systems Inc. ("ESI") in Dallas, TX.

3M Quality Lab Test Reports 44217, 44218, and 44219 reflect testing performed on October 30, 2020. The reports state that the contents are attorney-client privileged, and that the testing was witnessed by Kayleigh Nyquist, Rick Miller, Jerry Alcazar, and Greg Small. The EI&E report states that Mr. Small attended via web meeting. The SI report states that the

testing was observed using a Microsoft Teams connection, but no SI personnel is listed as having witnessed the above testing. It is not clear if this was an omission or if separate tests were conducted for SI.

The available information indicates that at least three tests were conducted at 3M. In one test, a LAD-SAF X3 was fixed on a safety cable and gradually increasing loads were applied. Total displacements were measured as a function of load, and final deformation of the energy absorber was measured after a maximum load of 3,100 lbs. was reached.

In the second test, a 220-lb test dummy fitted with a DBI Sala ExoFit harness was raised as much as possible above the LAD-SAF X3 and then allowed to drop. Sleeve travel along the safety cable and energy absorber extension were measured.

In the third test, the test dummy fitted was raised approximately 8 feet above the LAD-SAF X3 and then allowed to drop. Sleeve travel along the safety cable and energy absorber extension were measured.

Both EI&E and SI appear to conclude based on comparison of measurements on the LAD-SAF X3 and cable involved in the June 8, 2017 accident to data obtained during the October 30, 2020 tests that Mr. Moore could not have fallen as far as reported in the incident report. Defense experts appear to ignore the fact that Mr. Moore suffered injuries that were the result of his fall on June 8, 2017 as determined by multiple medical experts. Such injuries would not be expected from a fall that was arrested after a short distance by a normal engagement of the LAD-SAF X3.

No video, detailed field notes and other data for the October 30, 2020 tests have been provided to date, but several issues that call into the question the validity of such comparisons can nonetheless be identified.

A primary concern is that the tests were conducted with dummies, and that by definition, these dummies cannot interact with the environment in the same way that a falling human is bound to. It stands to reason that a falling human will interact with the system environment both intentionally (by attempting to grab the ladder, rope, and any other object that could offer security) and unintentionally by colliding and getting tangled with these objects. These interactions will slow the fall compared to the free-fall modeled by the dummy and will therefore cause the test results to underestimate the real-world fall height. Other factors such as residual drag of the broken Ibex climb-assist cable would also serve to retard the real-world fall compared to the test fall.

A second major issue involved the accuracy, repeatability, and error rate of the tests conducted by 3M. In each of the three cases, only a single test was conducted, and accordingly, no information is available regarding the extent to which measurements would vary if multiple identical tests were performed. This issue is particularly critical in light of the fact that measured energy absorber extensions for the 2-foot and 16-foot drop tests differed by only $\frac{3}{4}$ inch (2.75 inch vs. 3.50 inch) despite obvious differences in fall energy. Without

knowledge of the error rate for the 2-foot and 16-foot measurements if tests were repeated multiple times, comparing the deformation of the subject fall energy absorber to these isolated data points is of dubious scientific value.

An indication of test error that would have to be accounted for is found in the displacement vs. load data for the static energy absorber test. An extension of 3.50 inches was reported at a load of 760 lbs., but an extension of 4.00 inches was recorded at a load that was nearly 70 lbs. less (691 lbs.). There is also a potential problem with the use of static load test data to evaluate energy absorber deformation that occurred in a highly dynamic environment. Materials will exhibit significant changes in stress/strain behavior with changes in loading rate.

Errors can also occur due to normal and expected variations in production lots. There is likely an acceptable range of material properties (such as hardness and yield strength) and dimensions that apply to the production of energy absorbers. A slightly thicker energy absorber (or one with a higher yield strength) will deform less for a given fall severity. While such experimental errors are not unexpected, they must be noted and accounted for before valid comparisons with field data can be made.

EI&E and SI also point to cable deformation as support for the contention that Mr. Moore did not experience a significant fall. In addition to the experimental shortfalls cited above, this conclusion fails to account for other significant differences between Mr. Moore's fall and the laboratory tests conducted at 3M. By fixing the LAD-SAF X3 in place, lifting the dummy to a specific elevation and then allowing the free-falling dummy to slam into the stationary device, the 3M tests likely exaggerated both the total force and the peak force exerted on the safety cable. Both galvanized and stainless steel safety cables appear to have been used in various 3M tests. There is no indication how a determination was made that the material properties of the safety cable used in the 3M tests on October 30, 2020 were the same as or comparable to those of the safety cable involved in the June 8, 2017 incident.

Both EI&E and SI appear to discount the observed failures of multiple LAD-SAF X3 sleeves to engage the safety cable as designed during joint laboratory testing at ESi. In multiple instances, the LAD-SAF X3 failed to engage the safety cable when manually accelerated downward with the energy absorber in the raised position. Holding the energy absorber in the raised position is intended to simulate either a panic grab during a fall or a deliberate decision by the operator to prevent nuisance lock-ups during a controlled descent. The LAD-SAF X3 was reportedly designed and introduced into the marketplace to address this specific issue through the incorporation of an inertial cam locking mechanism that cannot be interfered with or disabled, and yet the device failed to reliably engage the safety cable when it was expected to do so.

SI acknowledged that “...*the (subject) sleeve did not engage the cable.*” when tested in this manner, and that an unused exemplar LAD-SAF X3 also failed to arrest the simulated fall. The EI&E report similarly acknowledges that the LAD-SAF X3 did not lock onto the safety

cable during this fall simulation. However, both SI and EI&E ultimately conclude that no departure from intended function was observed. (SI - *“Overall the testing performed on both sleeves resulted in expected behavior for the sleeves., and EI&E “Overall, my opinion was that the device was functioning exactly as it should...”*). Both SI and EI&E attempt to explain away the obvious failure of the device to lock onto the safety cable through movement of the inertial cam by suggesting that the device was not accelerated fast enough to reach the 0.7 to 0.9 g required for deployment. However, both the qualitative experience of having performed the test and the photo study of the carabiner presented in the Rimkus report clearly demonstrate that the downward acceleration during the test exceeded the minimum value at which deployment of the inertial cam should have occurred.

EI&E uses a mathematical model that relies on data from the static extension test conducted at 3M to calculate Mr. Moore’s maximum fall parameters. The maximum fall distance (12.74 inches) and peak force (1802 lbs.) generated by the EI&E model are provided to a degree of accuracy that is clearly not supported by the data and leaves a false impression of a degree of precision that does not exist. No information is provided regarding the accuracy of the model, and no credible range of fall height and peak force sustained by Mr. Moore is provided. The mathematical model itself has not yet been provided for evaluation, but some degree of the inaccuracies inherent in the model can nonetheless be derived from EI&E’s observation that the model-calculated peak force for a 16-foot fall is 17,760 lbs., whereas the experimental data showed less than 25% of that (approx. 4,200 lbs.)

One purpose of product testing and modeling is to learn about the behaviors of the products in a safe environment in such a way that the performance of the products can be understood. However, real-world results are also a source of knowledge regarding product performance and it is important to appreciate that real-world performance matters more than laboratory tests or theoretical models. Some failure modes may not occur in laboratory tests and may only manifest themselves under conditions of actual use. Should a laboratory test not show a failure mode that later manifests in the real world, the real-world failure is still real. Such is the case with the real-world failures of the LAD SAF X3 relied upon by Mr. Moore on the day of his fall incident.

When a product is designed and manufactured, an analysis of the hazards associated with the use of the product is expected. Such an analysis should consider both the likelihood and the severity of the hazards becoming manifest. For life-safety devices such as fall protection equipment, a high level of effort to discover and address the hazards is called for. This requirement is reflected in the National Society of Professional Engineers Code of Ethics which states in part that *“Engineers, in the fulfillment of their professional duties, shall: Hold paramount the safety, health, and welfare of the public.”*

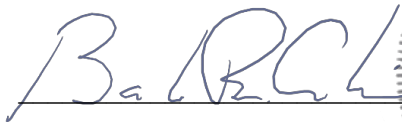
In a June 1, 2018, letter 3M asserts that, *“3M Fall Protection is committed to providing the highest quality fall protection solutions on the market.”* As part of this commitment, 3M should have analyzed in greater depth the ways in which a panic grab might interfere with

the function of the locking cam of their LAD SAF X3. From our investigation it appears that they did not identify and correct two defects that can result in the LAD-SAF X3 failing to function as intended.

The two significant defects that have been identified in the LAD-SAF X3 are the following. Even when the device passes the specified field tests, (a) lateral pressure on the raised energy absorber can prevent movement of the inertial cam, and (b) when subjected to a downward acceleration above the specified minimum level with the energy absorber in the raised position, the device fails to reliably lock the inertial cam on the safety cable. These documented failures to perform in accordance with design intent under real-world conditions render the LAD-SAF X3 defective and unreasonably dangerous regardless of compliance or non-compliance with performance criteria for scripted laboratory tests.

The opinions and conclusions expressed in this rebuttal report are based on the information available to Spectrum as of the date of this report. Review of documents is ongoing. As discovery continues, it may be that additional information will become available which will affect our opinions and conclusions and may require the preparation of an addendum report.

Respectfully submitted,



Bastiaan E. Cornelissen, Ph.D., P.E.



Respectfully submitted,



Mark D. Russell, Ph.D., P.E.

